
Ring Finger Protein 14 is a new regulator of TCF/beta-catenin-mediated transcription and colon cancer cell survival.

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Public Summary:

Scientific Abstract:

T-cell factor/lymphoid enhancer factor (TCF/LEF) proteins regulate transcription by recruiting beta-catenin and its associated co-regulators. Whether TCF/LEFs also recruit more factors through independent, direct interactions is not well understood. Here we discover Ring Finger Protein 14 (RNF14) as a new binding partner for all TCF/LEF transcription factors. We show that RNF14 positively regulates Wnt signalling in human cancer cells and in an in vivo zebrafish model by binding to target promoters with TCF and stabilizing beta-catenin recruitment. RNF14 depletion experiments demonstrate that it is crucial for colon cancer cell survival. Therefore, we have identified a key interacting factor of TCF/beta-catenin complexes to regulate Wnt gene transcription.

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